

## Implementing Artificial Intelligence for English Language Learning in Pakistani Universities: Challenges and Opportunities

**Aiman Chodhary**

PhD Scholar, COMSATS University Islamabad, Vehari Campus

Email: aimench0200@gmail.com

**Prof. Dr. Ali Ahmad**

Chairperson, Department of Humanities, COMSATS University Islamabad

Email: aliahmad@cuivehari.edu.pk

### ABSTRACT

The current research paper will examine the integration of Artificial Intelligence (AI) in English Language Learning (ELL) in Pakistani universities and critically evaluate the existing challenges and opportunities. The use of AI-based tools to improve language skills, such as ChatGPT, Grammarly, and Duolingo, is growing, and these tools are helping to improve the language skills of students through the use of personalized learning, immediate feedback opportunities, and increased learner engagement. They can also use these tools to enrich their vocabulary, improve writing proficiencies, and develop learner autonomy, empowering the students to succeed in their academic and professional lives. However, there exist some restrictions on successful embedding, such as the lack of digital infrastructure, the lack of digital literacy among the teacher community, cultural mismatch within the created AI-based content, ethics rooted in data privacy and integrity in the academic world, and economic barriers. Despite all these obstacles, AI has the potential to reduce educational inequalities, especially in those institutions that are underfunded. As such, policy reviews, selective teacher training, infrastructure development, and development of culturally sensitive AI material are necessary to maximize its impact on the study. Such a broad, systemic approach is necessary to the promises of linguistic-learning advantages that AI will bring to full fruition.

**Key-Words:** Artificial Intelligence, Opportunities, Challenges, Technology, Pakistani Universities, Ethics, Tools, ChatGPT, English Language Learning

### Introduction:

The innovative introduction of Artificial Intelligence (AI) into education has become a trend that is previously changing the scope of teaching and learning everywhere in the world. There is growing practice in AI-based applications in the classroom to individualize instruction, automate responses, and enable learners to be more self-directed, the language learning context being a major area of application (Zawacki-Richter et al., 2018, p. 25). In the context of English Language Learning (ELL), the AI tools, likely, ChatGPT, Grammarly, Duolingo, and Turnitin allow delivering

dynamic platforms, thanks to which students can enhance their reading, writing, speaking, and listening skills on the adaptive and interactive technology levels (Dwivedi & Vishwakarma, 2023, p. 112; Khan, 2023, p. 94). Such inventions are especially important to developing countries such as Pakistan, where English is the medium of instruction in higher institutions of learning, and mastering the language is well linked to academic achievement and competence in the modern world (Shumaila et al., 2024, p. 90).

Advances to AI in recent years have shown a significant degree of effectiveness in application to natural language processing (NLP), machine learning, and intelligent tutoring systems, thus allowing the production of differentiable teaching recommendations based on the needs and progression of individual learners. This ability creates more accommodating and efficient language learning conditions (Chen et al., 2020, p. 61; VanLehn, 2011, p. 78). Moreover, E-learning games like Duolingo reward the learners with immediate feedback, adaptive learning and, thus, ensuring vocabulary can be remembered and grammar mastered (Zou et al., 2018, p. 19). A trend towards the spread of mobile phones, the increasing availability of the internet to students of Pakistani universities, has contributed to the spread of AI teaching aids, so this has offset the lack of teachers and educational materials in underfunded schools and universities (Ejaz & Jamil, 2024, p. 48).

Though the potential of a breakthrough artificial intelligence (AI) in language learning is well noted; however, in Pakistan, its implementation in higher education is limited due to a few factors. These obstacles include failure in the infrastructure, poor digital literacy, cultural mismatches in auto-generated documents, financial losses, ethical issues of academic honesty, and pedagogical resistance (Baqir & Durr-e-Nayab, 2024, p. 57; Khan et al., 2024, p. 23). The issue of data privacy and the risk of reducing critical thinking and creativity through AI-dependent practice should be discussed as well (UNESCO, 2019, p. 14).

As the Pakistani higher education industry continues to struggle with paradigms, the national roadmap towards a digital nation offers an attractive platform to boost performance in the education sector through the implementation of artificial intelligence (AI). Presidential Initiative on Artificial Intelligence and Computing (PIAIC) represents the state declaration of intention to engage technological innovations in the academic environment, and the empirical evidence shows that more and more educators and students are admitting themselves to trying hands at AI-based teaching and learning practices (Pakistan Point, 2024, p. 4; Firdaus & Nawaz, 2024, p. 33). It must therefore be of paramount importance that a massive appropriation of AI must be guided by a systematic and situational framework that would be sensitive to those pedagogical, infrastructural, and socio-cultural contexts in the doing.

The present research analyzes the use of artificial intelligence (AI) in teaching English in Pakistani universities. It highlights progress as well as setbacks and explains how AI is practiced in various ways, explains its learning benefits, and points to contextual challenges that limit adaptation. Therefore, the analysis places AI in the wider discourse on educational technology in Pakistan, and the proposed recommendations will determine how AI can have the most significant impact in terms of teaching and learning, as well as protecting academic integrity, equity, and pedagogical integrity.

## Background

The language is also a key factor in academic achievement and upward social mobility in Pakistan, as English, used as the main instructional language in schools and colleges, is closely linked to the successful progress in profession and education (Shumaila et al., 2024, p. 88). Trying to reach global standards, the integration of technology and especially of Artificial Intelligence (AI) into teaching English has become a direction supported by higher-education organizations. This market shift correlates with the general trend of the global education landscape, where AI is reshaping the instructional practice through automation of administrative procedures, encouraging the adaptive learning environment, and implementing intelligent tutoring systems that individualize the instruction to a single learner (Zawacki-Richter et al., 2018, p. 12).

All the tools based on artificial intelligence have taken the roles of supplement and, in some cases, dominance in modern English-language-learning environments. The systems provide personal feedback, gamification of learning content delivery, and automated monitoring of performance by providing dynamic alternatives to traditional classroom practice. Duolingo, as an example, meditates on instructional sequences to proficiency level, spaced repetition, and interactive activities; ChatGPT, in turn, provides real-time support in writing, explanation, and conversation; Grammarly vents grammar correction and stylistic enhancement, and Turnitin supports the academic integrity process by identifying plagiarism and displaying automated feedback. These tools are especially relevant regarding EMI (English as a Medium of Instruction) contexts, since they respond to some essential linguistic issues pertaining to vocabulary building, their proficiency in grammar, and their competence in conducting scholarly writings (Ejaz & Jamil, 2024, p. 50).

In spite of their promising future, the rocky socio-economic, infrastructural, and cultural aspects in the higher education scenario in Pakistan can limit the popularization of artificial intelligence (AI). According to empirical data, several universities that cater to the population of students in rural areas face a constant problem of problems with internet connection, insufficient technological design, and insufficient faculty readiness in the sphere of digital technologies (Khan et al., 2024, p. 26). As a result, low digital literacy levels of students and instructors can be the key factor holding back a successful application of AIs, even when a resource is somewhere on hand (Sharma & Singh, 2020, p. 47). In addition, differences in culture inherent in AI-generated content, which is mostly based on Western sociolinguistic schemes, can reduce interest and understanding in students (Ejaz & Jamil, 2024, p. 53).

The Pakistani higher education institutions, including the universities, still rely mainly on lecture-based pedagogies, and in language teaching, the traditional teacher-centered approaches prevail. AI also presupposes the improvement of the facilities as well as a shift in pedagogical practices, which no longer give people information but work with digital tools (Khan et al., 2024, p. 30). With AI technologies changing the modes of learning all over the world, Pakistan finds itself in the thickets of opportunity and limitation as the country finds a means to apply such innovations within its peculiar means of educating the population.

The history of learning the English language in Pakistan is meaningfully linked to

socio-economic systems, technological facilities, as well as a changing pedagogical standard. The potential of AI to revolutionize the teaching of English as a foreign language in higher education institutions is immense, but this promise can never be achieved without a specifically guided or targeted deployment of AI that takes into consideration the institutional, cultural, and technological implications of the country in which they are being applied.

## **Main AI Tools for English Language Learning**

The use of Artificial Intelligence (AI) in learning the English language has drastically shifted the pedagogical paradigm, leading to the decline of traditional, static, customizable, and data-based educational experiences in favor of dynamic, individualized, and data-driven learning methods. AI-driven programs have become the core of the academic life of many students, helping them to learn new vocabulary, proofread grammar, and read and write their essays by using interactive and smart online software. The combination of these tools to teach English language in a classroom setting presents a multi-dimensional solution to the stumbling blocks of linguistic barriers to language learning due to the absence of access to good instructors and standardized content in places as diverse as Pakistan, where access to qualified instructors and standardized content is unevenly distributed. (Ejaz & Jamil, 2024, p. 48).

## **ChatGPT**

ChatGPT is a large language model with Natural Language Processing (NLP) developed by OpenAI that produces text that appears to be human-written when based on user input. It will aid in studying language, as learners will be able to practice allowing the simulation of conversations, paraphrasing complex sentences, writing prompts, as well as practicing grammar correction in real-time (Dwivedi & Vishwakarma, 2023, p. 116). For English as a Second Language (ESL), ChatGPT enhances self-directed learning, provides situational vocabulary support, and allows critical reasoning and reflection in a dialogue. According to students, the use of ChatGPT also manifests itself as positive conviction, as the conversational style is the most non-judgmental of them and the fear of failing is eliminated, which, in second-language acquisition, is a critical variable (Krashen, 1982, as cited in Zawacki-Richter et al., 2018, p. 20).

## **Grammarly**

Grammarly is a popular example of an AI-based writing assistance tool which acts in real-time to grammar and spelling check as well as identify stylistic anomalies or inconsistencies, suggesting tone and clarity rules. With such capabilities, learners will be able to develop their writing fluency, sentence structure, and, more to the point, academic tone (Kukulska-Hulme, 2020, p. 84). One of the primary proficient interventions in Grammarly is used as a corrective instrument as well as autonomous writing coach among the Pakistani students of universities in sustaining the development of a writing competence and learner autonomy (Khan, 2023, p. 99).

## **Duolingo**

Duolingo is a computer-assisted, gamified language-learning program that employs AI-based algorithms to personalize vocabulary, grammar, and pronunciation training. Through the implementation of adapted-learning and spaced-repetition methods, Duolingo implements the practice of long-term retention of language elements (Zou et al., 2018, p. 22). Inherent motivational properties of the tool, as it is described by points, badges, and progress indicators, also facilitate increasing the level of engagement of the learners, especially among novices or those in rural or under-resourced settings (Zainuddin, 2024, p. 61). The English-as-Medium-of-Instruction (EMI) system has become one of the major issues during English language education at Pakistani schools. In this context, Duolingo can be used as an affordable, available, and compliant with classroom instruction.

## **Turnitin**

Turnitin is an Artificial intelligence-powered tool designed to help protect academic integrity and also to help writers improve themselves. Its plagiarism-detecting feature is well recognized, but the site also provides a critical analysis of grammar, coherence, and organization, which works to help the students review their papers by performing a point-by-point criticism (Rolfe, 2011, p. 235). At Pakistani colleges and university institutions, where the issue of dishonesty in academia is gradually growing, Turnitin not only helps to address the problem of ethical behavior but also provides meaningful feedback that allows crafting better writing (Baqir & Durr-e-Nayab, 2024, p. 59).

## **QuillBot**

QuillBot offers an automatic paraphrasing and summarizing toolset that allows the learner to rephrase the text, keeping its initial meaning. The engine powered by AI helps expand vocabulary, study the structure of a sentence, and avoid duplicating academic writing. In several writing modes, such as standard, fluency, and formal, QuillBot targets learners with different levels of proficiency and promotes the creation of academic tone and precision (Ejaz & Jamil, 2024, p. 54).

### **3.6 DeepSeek r1**

Introduced in 2025, the DeepSeek r1 model shows a state-of-the-art performance in grammar correction, adaptive writing feedback, and contextual accuracy. The Lattice has an architecture, modeled on a Mixture-of-Experts (MoE) approach, that has led to greater accuracy in writing assistance, and the fact that it is an open-source design, its costs are minimal to public-sector universities interested in working with AI technologies. This model is especially applicable to multilingual speakers, correcting prototypical transfer-of-grammar errors which occur due to effects of the native language (as in the case of learners of the English language who are of Pakistani origin) (Joshi, 2025, p. 91). In turn, DeepSeek r1 can be seen as a potential research and learning tool used by organizations that need to make AI an inseparable part of linguistics and writing realities.

## **Opportunities in Implementing Artificial Intelligence (AI)**

Implementing Artificial Intelligence (AI) in Learning English at Universities in Pakistan has many opportunities. These opportunities can bring a complete change in the context of language learning. Moreover, it will also lead to digital literacy and student engagement overall. This sort of opportunity is especially useful in a country like Pakistan, where disparities in educational resources, access to able faculty, and student preparedness are still serious obstacles to learning outcomes (Khan et al., 2024, p. 24). When used carefully, AI is an interesting educational tool that differentially prepares young people for the globalized world and alleviates their education gap.

## **Personalized Learning Experiences**

AI technologies like Duolingo, ChatGPT, and Grammar checkers provide customized learning paths. This is done by studying individual learner performance and adapting tasks with regard to their skill levels. This helps pupils to work on their grammar or vocabulary, or pronunciation at their own pace (Chen et al., 2020, p. 609). Adaptive learning algorithms make students more motivated because they help avoid tasks that are too difficult and too easy. Personalized instruction, which was only possible via one-to-one tutoring, is becoming available to a larger student pool, including at under-resourced public universities (Pakistan Point, 2024, p. 4).

## **Real-time and Constructive Feedback**

One of the main features that gives AI tools their edge is instant personalized feedback. Online writing tools like Grammarly and QuillBot help students recognize an array of grammatical errors, suggest stylistic improvements, and develop clearer sentence structures in real time (Kukulska-Hulme, 2020, p. 86). Similarly, ChatGPT helps explain complex sentence patterns, offers vocabulary alternatives, and models answers to enhance understanding. Instant feedback systems promote self-correction while reducing dependency on external evaluators (Khan et al., 2025, p. 80).

## **Enhanced Student Engagement**

Gamification features added to AI-driven apps, such as Duolingo and QuillBot, keep the student motivated by adding a point system, badges, and a progress board. These functions turn the learning process into a more engaging and enjoyable activity, which is more beneficial to the students, affirmed to digital technologies are more responsive to visual and goal-oriented messages (Zainuddin, 2024, p. 63). These tools help to keep practicing longer since intrinsic motivation increases the willingness to continue working.

## **Support for Autonomous Learning**

AI tools help learners take control of their own learning, explore and modify knowledge, and test it independently. For example, ChatGPT acts as an intelligent conversational partner that helps learners hone their communication skills without limitations of time or judgment (Dwivedi & Vishwakarma, 2023, p. 117). Is knowledge applicable? This independence strengthens metacognitive skills such as goal setting and self-monitoring, which are relatively important to academic success

over the long term (Baqir & Durr-e-Nayab, 2024, p. 60)

### **Bridging Educational Inequities**

In Pakistan, not all rural or economically weak institutions have access to qualified English language teachers. According to a source from 2024, published on p. 49, the alternative in the form of tools like AI has proved to be capable of providing scalable and consistent language teaching that can be given anywhere in the world at any geographical location. Private school tuition and fees are much costlier than other education systems. Also, the learning resource platform makes education economical.

### **Preparation for Global Communication**

The ability to speak English makes travelling abroad for studies and getting a job possible. According to a source, the use of AI tools like Turnitin, Grammarly, DeepSeek r1, among others, helps the students attain the academic writing, citation, critical thinking, etc., required for international scholarship (Joshi, 2025, p. 91). According to Pakistan Point (2024, p. 5), learners are prepared to communicate in world contexts with AI-generated academic vocabulary, structured writing templates, and collaborative digital platforms.

The decision to use artificial intelligence (AI) in English language teaching will become a breakthrough in transitioning to new, flexible student-centered paradigms, separated from the restrictions of the classical pedagogy that focuses on lectures. Employed thoughtfully concerning the customary and infrastructural setting of Pakistani universities, AI can transform the possibility of language learning as well as the outlines of academic achievement in these educational establishments.

### **Challenges in AI Implementation**

Artificial intelligence (AI) has a great opportunity to reinforce English acquisition in Pakistani universities, but its real-life application faces a cocktail of challenges. Such barriers are multilateral, involving technological features, pedagogical concerns, economic and cultural ones, thus limiting the accessible and efficient implementation of AI-based tools with significant restrictions. The introduction of AI in the field of education, unless those real-world situations are mitigated proactively, is likely to increase educational disparities as opposed to reducing them (Khan et al., 2024, p. 27; Baqir & Durr-e-Nayab, 2024, p. 58).

### **Lack of Infrastructure**

Lack of adequate digital infrastructure has been regarded as one of the most ardent factors that hinder the adoption of artificial intelligence in Pakistani institutions of higher learning. The reality of public-sector institutions, especially in rural or other underserved areas, is unstable power, low-bandwidth or otherwise problematic connections to the internet, and limited access to the digital devices themselves (Khan et al., 2024, p. 23). Such infrastructural shortages hamper the participation of students as well as the faculty in cloud-based AI applications like ChatGPT, Duolingo, and Grammarly. Unless it is reliably connected and has access to sufficient equipment, even the latest of the latest does not exist as an urban child, as the digital gap between the cities and the countryside continues to expand.

## **Limited Digital Literacy**

Digital competence is another great obstacle to the effective application of artificial intelligence (AI) in education. Teachers are often unacquainted with the practical limitations and pedagogical potential as well as the ethical complexities of AI-based tools, and, as a result, they develop hesitation or directly embrace opposition to using the technology (Sharma & Singh, 2020, p. 47). Students, as well, can find it very difficult to use the AI platforms, thereby negating the expected advantages of the same. A lack of well-designed training sessions and related infrastructures has created many gaps in digital literacy levels that impede the effective use of AI despite the known benefits (Firdaus & Nawaz, 2024, p. 36).

## **Cultural and Linguistic Relevance**

Although artificial-intelligence (AI) devices and tools are quite popular, these devices are often constructed based on Western linguistic and cultural patterns, which makes them less relevant and sometimes offensive to South Asian students. The use of idioms, accents, and contextual examples in some of the programs, like ChatGPT or Duolingo, may lack usage in the everyday communicative needs of Pakistani students (Ejaz & Jamil, 2024, p. 53). Such a lack of attention to localization may reduce learners' involvement and understanding. That is why culturally responsive AI systems are needed urgently with integrated indigenous language practices, indigenous language values, and indigenous educational norms.

## **Ethical Concerns and Academic Integrity**

The task of academic dishonesty, as well as excessive use of automated help, is the ethical factor that provokes concern in the case of AI-generated content. Such tools as QuillBot or ChatGPT can be used to submit assignments or paraphrase the material without real learning and thus promote the problems of plagiarism and poor learning in addition to academic ethics (Baqir, 2024, p. 59). At the same time, teachers often have neither instruments nor the corresponding background to identify plagiarism that is performed with the help of AI efficiently, creating gaps in the assessment patterns and damaging the reputation of scholarly results in the process.

## **Financial Constraints**

Financial constraints form an institutional barrier to the adoption in the vast majority of universities. Licensing costs necessary to use the premium versions of the AI tools, costs of training the teachers, and the requirement of significant hardware and software infrastructure investments often go beyond the financial abilities of the institution with limited budgets (Khan et al., 2024, p. 26). In spite of the fact that many tools can be tried at no cost, their limited functionality will deliver a significant blow to their educational usefulness. Without strategic investments in the population or charitable resources, the sustainable integration of AI in the educational sector of higher education is impossible.

## **Data Privacy and Security**

The use of AI is based on the assumption that large amounts of user data are gathered and processed, which prompts related discussions on the topics of privacy, ownership

of data, and cybersecurity (UNESCO, 2019, p. 11). In the Pakistani case, where the regulatory framework to provide data protection is still developing, it is possible that personal and educational data are likely to be used in an abusive manner. The lack of clear ethical guidance and institutional frameworks for AI use worsens the challenges of providing a safe and responsible use of such technologies.

Despite this potential in Pakistan, an elaborate combination of problems interlinks to impede the actualization of the AI revolution in English language education. The key to overcoming such stumbling blocks lies in an integrated policy system, investments into the infrastructure and related professional training, as well as the localization of AI-based tools as well and a principled adherence to the ideals of ethics and equity.

### **Insight from the Case Study**

A substantial amount of literature has been written on the theory and the world framework of Artificial Intelligence (AI) in language learning, whereas studies based on the Pakistani context are minimal in terms of empirical examination. This research will support novel information that was gathered among university students and staff of various Pakistani universities. The findings help to understand how the AI systems are understood, used, and experienced by actual educators and learners, thus providing the answer to the question on the gap between the theoretical promise and the real practice in the classroom.

### **Students' Perspectives on AI Tools**

The given empirical study focuses on investigating the degree to which students of universities feel that the utilization of the artificial-intelligence (AI) writing assistance resources can be valuable towards the growth of their proficiency in the English language specifically in the areas of writing competence and the enhancement of lexical growth. The major conclusions suggest that many undergraduate and graduate respondents supported the applicability of AI-based tools to such ends, with Grammarly, ChatGPT and QuillBot listed as the most commonly used tools. According to the respondents, such tools helped them to correct the grammatical mistakes; they helped to improve the sentence structure, and paraphrase academic text effectively. In particular, 82 percent of the participants confirmed that the use of Grammarly had enhanced their confidence in writing academic materials, whereas 76 percent of them concurred that applying ChatGPT helped them in the explanation of unclear words and syntax (Shumaila et al., 2024, p. 91).

In addition to these practical advantages, the participants in the study reported significant interest in the immediacy and accessibility aspects of the AI-assisted feedback they received, which they also considered to be especially important in the scenario of learning constructs with weak institutional support of writing development. The fact that one could access it through mobile devices and laptops also supported flexible usage of tools beyond classroom walls. However, a smaller group of students admitted to being inclined to overly rely on the help of services like QuillBot and ChatGPT to paraphrase, which may undermine the originality and thoughtfulness of the text (Baqir & Durr-e-Nayab, 2024, p. 59).

## Teachers' Views on Integration and Usefulness

Information on instructor response wavered back and forth. Most of them noted that AI technologies could enrich teaching and especially in a lesson that has many students; however, they had doubts about the dependency of learners and the risk of losing their writing skills. Nearly 68 % of the teachers who participated in the survey claimed that AI can help to maintain linguistic accuracy and coherence in students, and a little over 41 % of the respondents mentioned that they used corresponding tools in their work (Firdaus & Nawaz, 2024, p. 35).

Faculty members were concerned with the lack of regulation when applying generative artificial intelligence tools like ChatGPT, expecting it to raise the rates of plagiarism and result in a decrease of independent language production among students. They also admitted to the widespread lack of formal guidelines as to how they can include AI into language-teaching programs, a gap which hindered their abilities to adhere to proper guidance (Khan et al., 2024, p. 27).

## Impact on Language Skills

Based on empirical evidence, it was found that AI-powered technologies produced a stronger impact in the fields of receptive and written language, specifically, reading comprehension, grammar, and allied skills, but not in the area of productive skills, that is, speaking and listening. This observation is consistent with the overwhelming trend in the architecture of presently used AI tools, which are focused on text-based interaction and most often aim at correcting writing, extending vocabulary, and supporting reading. An example here was that Duolingo was also seen as barely imparting benefits in pronunciation and listening comprehension, while only 38 per cent of the individuals had mentioned that it increased their self-efficacy in the spoken language (Ejaz & Jamil, 2024, p. 52).

The diluted impact on oral communication abilities thus signifies that AI can work as an accessory to the teaching process, yet not as a substitute for communicative classroom interaction and human interaction in general, especially in the spheres of pronunciation, fluency, and free-flow talk.

## Challenges Identified Through Field Data

The structural barriers observed in the literature were supported and built by the investigation. The subjects in the study who work in the higher-education sphere in the public sector described poor and inconsistent internet connection, the limited number of digital tools available to them, and the lack of exposure to AI throughout their previous schooling as a hindrance to the successful use of said tools. Similarly, faculty and students also emphasized the necessity of localized content in AI tools and explained that in tools like Duolingo or ChatGPT, exemplars, vocabulary, and cultural frames most of the time fail to reflect their own lived experiences (Ejaz & Jamil, 2024, p. 54).

Besides, many stated that there is no provider direction or policy structures to support the ethical and pedagogic use of AI in the classroom setting. It leads to the existing ambiguity that breeds vague practices even between the departments of the same university and between universities, which subsequently leads to confusion and abuse of AI tool use in academic activities (Baqir & Durr-e-Nayab, 2024, p. 60).

## Summary of Key Empirical Insights

| Theme               | Findings                                                  |
|---------------------|-----------------------------------------------------------|
| Student Use         | High adoption of Grammarly, ChatGPT, and QuillBot         |
| Perceived Benefits  | Improved writing, vocabulary, and grammar                 |
| Teacher Attitudes   | Mixed: support with caution; lack of training             |
| Skills Improved     | Writing > Reading > Listening > Speaking                  |
| Structural Barriers | Internet access, tool affordability, and digital literacy |
| Ethical Concerns    | Plagiarism, over-dependence on AI-generated content       |

The results of this study support the extreme level of the necessity to introduce artificial intelligence into the educational environment based on a carefully planned and theory-based framework. This kind of framework needs to not only facilitate advancing skills in reading and writing English but also protect academic rigor and promote independent intellectual activity.

## Policy Implications and Recommendations

The findings of the research based on the international data and locally-based research carried out in Pakistani universities have proved that even though Artificial Intelligence (AI) has substantial potential for applying it in terms of improving the teaching of the English language, its successful application requires comprehensive implementation. Lack of an extensive digital infrastructure is the major factor that has contributed to the delayed digitization, particularly in rural campuses and institutions in the public sector. Constant electricity failures, inadequate internet bandwidth, and inability to access gadgets mitigate the successful use of AI-powered learning applications (Khan et al., 2024, p. 26). This shortfall needs to be overcome through coordination of the Higher Education Commission (HEC) with the provincial governments and the telecom providers to arrange the necessary infrastructure. At the same time, teacher education ought to be built around not only the concept of operational competence, but also a pedagogical use of AI regarding curriculum development and implementation, assessment processes, and feedback to students. This teaching is supposed to foster both independence and critical thinking in students (Firdaus & Nawaz, 2024, p. 37).

Technological integration is the greatest issue Pakistan is presenting, challenging its educational infrastructure without precedent. Despite the growing employment of emerging tools of AI in the instructional environment, their alignment with socio-linguistics as well as the curricula of the country, is relatively low. As a result, the effectiveness of pedagogy and engagement of learners is undermined (Ejaz & Jamil, 2024, p. 53). As a solution to this, national curriculum organizations, language departments, and software developers should cooperate to localize AI vocabulary, idioms, and cultural references. The module on AI literacy in English for Academic Purposes (EAP) programs would create a structure that could help students to use applications like Grammarly, Turnitin, and ChatGPT responsibly. Ethics is also of primary concern; strong institutional guidelines are needed to drive the use of AI in assignments and research. Educational programs should be developed to pursue the academic integrity issue, prevent excessive reliance on AI, and embrace more of transparency; Turnitin, in particular, should be used not only to identify plagiarism

but also to provide feedback that would have a positive effect on the quality of writing among students.

Creating a more rational and controlled structure is crucial to equal education participation. This should include subsidization of AI tools and training workshops to students who belong to economically disadvantaged and rural groups and students with disabilities (UNESCO, 2019, p. 15). Moreover, the results of the AI-assisted English study should be examined in interdisciplinary research centers at universities, and the collaboration of language, computer science, and education departments should be followed (Zawacki-Richter et al., 2018, p. 19). It is also possible to form partnerships with EdTech organizations to improve the creation of AI tools, which would specifically serve Pakistani learners. Notably, a national regulatory system should be introduced to prevent student data misconduct, ensure AI algorithm transparency, and define ethical AI applications in education (UNESCO, 2019, p. 11). To sum up, a policy environment and a coordinated policy framework that is ethically based are critical to transform the potential of AI into practice, including English language learning in Pakistan, convincing, inclusive, and sustainable.

## Conclusion

Artificial intelligence (AI) in English language learning in Pakistan presents the key opportunity to improve higher education nationwide; it is indicated that ChatGPT, Grammarly, Duolingo, and Turnitin can benefit learner autonomy, improve academic writing, and lead to increased learner engagement, especially in educational institutions facing under-resourced conditions. However, the successful implementation of the tools is limited by poor infrastructure, lack of digital literacy, ethical issues, and pedagogical transformation resistance. The solution to these issues requires the adoption of a holistic plan that would cover infrastructure improvement, faculty training, content localization, and the creation of an equal opportunity. Achieving successful implementation also requires co-operation between policymakers, education institutions, and EdTech developers, where there is a coordination between the AI tools and the cultural and socio-economic realities of Pakistan. Ultimately, one has to understand that AI is not supposed to replace teachers but become an auxiliary tool, which is also able to help improve the quality and accessibility of learning the English language and provide students with the knowledge that they will need in their further academic and professional activities.

## References

- Baqir, M., & Durr-e-Nayab, D. (2024). Ethical implications of AI use in Pakistani higher education. *South Asian Journal of Education and Ethics*, 12(2), 55–70.
- Chen, X., Zou, D., & Xie, H. (2020). Smart learning environments: AI-powered adaptive learning in language education. *Computer Assisted Language Learning*, 33(5–6), 604–622.
- Dwivedi, S., & Vishwakarma, D. K. (2023). The role of generative AI in enhancing English language fluency. *International Journal of Language and Communication*, 14(3), 110–123.
- Ejaz, R., & Jamil, S. (2024). Cultural adaptation of AI tools in ESL classrooms in Pakistan. *Asian Journal of Applied Linguistics*, 8(1), 45–60.

- Firdaus, A., & Nawaz, M. (2024). Viewpoints of teachers about the usage of artificial intelligence in ELT: Advantages and obstacles. *Pakistan Languages and Humanities Review*, 8(III), 29–41.
- i-Learner Education Centre. (2025). *How AI tracks student progress in English learning*. Retrieved from <https://www.i-learner.edu.hk/how-ai-tracks-progress>
- Joshi, S. (2025). Evaluating DeepSeek r1 as an AI assistant in English writing improvement. *Journal of AI and Education*, 9(1), 87–94.
- Khan, A., Tariq, M., & Bashir, H. (2024). Barriers to AI integration in Pakistani universities. *Journal of Educational Innovation*, 10(1), 22–39.
- Khan, A., Yousaf, F., & Akbar, R. (2025). AI-powered feedback and writing skills in university students. *International Journal of AI in Education*, 13(1), 77–91.
- Khan, N. (2023). AI and English proficiency: Investigating student performance at University of Okara. *Pakistan Journal of Applied Linguistics*, 11(2), 90–104.
- Kukulska-Hulme, A. (2020). Mobile-assisted language learning [MALL]: Applications and implications. *Journal of Educational Technology*, 12(3), 81–89.
- Pakistan Point. (2024). *AI and personalized learning in Pakistan's higher education*. Retrieved from <https://www.pakistanpoint.com/en/story/ai-education-pakistan>
- Rolfe, V. (2011). Turnitin: An evaluation of the effectiveness of e-plagiarism detection software. *British Journal of Educational Technology*, 42(2), 233–238.
- Sharma, R., & Singh, A. (2020). Teacher training in AI integration: Addressing the gap in rural education. *International Journal of Educational Technology*, 15(2), 45–59.
- Shumaila, H., Mamoon, D., & Arif, W. (2024). AI-based instruction and English language proficiency in Pakistan. *Pakistan Journal of Education and Technology*, 9(1), 88–103.
- UNESCO. (2019). *Artificial intelligence in education: Challenges and opportunities for sustainable development*. Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000366994>
- VanLehn, K. (2011). The relative effectiveness of human tutoring, intelligent tutoring systems, and other tutoring systems. *Educational Psychologist*, 46(4), 197–221.
- Zainuddin, M. (2024). Gamification and student engagement through AI platforms. *Journal of Educational Technology in Asia*, 11(2), 60–74.
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2018). Systematic review of research on artificial intelligence applications in higher education. *International Journal of Educational Technology in Higher Education*, 15(1), 1–27.
- Zou, D., Huang, Y., & Xie, H. (2018). Digital game-based vocabulary learning: Where are we and where are we going? *Computer Assisted Language Learning*, 34(1–2), 1–27.